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
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Title of Invention: In Vitro Formation of Congophilic Maltese-Cross Amyloid Plaques to Identify Anti-Plaque Therapeutics for the Treatment of Alzheimer's and Prion Diseases

INFORMATION DISCLOSURE CITATION

REFERENCES

OTHER REFERENCES

Ex.	Doc #	Description (Author, Title, Date, Pertinent Pages, Etc.)
	A	SNOW et al. "An Important Role of Heparan Sulfate Proteoglycan (Perlecan) in a Model System for the Deposition and Persistence of Fibrillar A β -Amyloid in Rat Brain," Neuron, Vol. 12, pp.219-234, Jan. 1994.
	B	CASTILLO et al. "Perlecan Binds to the β -Amyloid Proteins (A β) of Alzheimer's Disease, Accelerates A β Fibril Formation, and Maintains A β Fibril Stability," Journal of Neurochemistry, Vol. 69, No. 6, pp.2452-2464, 1997.
	C	DESDOUIITS et al. "Amyloid β Peptide Formation in Cell-free Preparations," Journal of Biological Chemistry, Vol. 271, No. 40, pp.24670-24674, Oct. 4, 1996.
	D	JENSEN et al. "Binding of A β to α - and β -Synucleins: Identification of Segments in α -Synuclein/NAC Precursor that Bind A β and NAC," Biochem. J., Vol 323, pp.539-546, 1997.

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8	E	BAME et al. "A β (1-40) Prevents Heparanase-catalyzed Degradation of Heparan Sulfate Glycosaminoglycans and Proteoglycans <i>in Vitro</i> ," Journal of Biological chemistry, Vol. 272, No. 27, pp.17005-17011, July 4, 1997.
	F	CASTILLO et al. "Novel Purification and Detailed Characterization of Perlecan Isolated from the Engelbreth-Holm-Swarm Tumor for Use in an Animal Model of Fibrillar AB Amyloid Persistence in Brain." J. Biochem, vol. 120, no. 2, pp. 433-444, 1996.
	G	VERGA et al. "Alzheimer Patients and Down Patients: Cerebral Preamyloid Deposits Differ Ultrastructurally and Histochemically from the Amyloid of Senile Plaques." Neuroscience Letters, vol. 105, pp.294-298, 1989.
	H	BARCIKOWSHA et al. "About the Presence of Paired Helical Filaments in Dystrophic Neurites Participating in the Plaque Formation." Neuropathol, vol. 78, pp.225-231, 1989.
	I	IKEDA et al. "Morphology and Distribution of Plaque and Related Ddeposits in the Brains of Alzheimer's Disease and Control Cases." Laboratory Investigation, vol.60, No.1, p.113-122, 1989.
	J	MASLIAH et al. "Re-Evaluation of the Structural Organization of Neuritic Plaques in Alzheimer's Disease." Journal of Neuropathology and Experimental Neurology, vol.52, no.6, pp.619-632, November, 1993.
	K	WISNIEWSKI et al. "Spectrum of Morphological Appearance of Amyloid Deposits in Alzheimer's Disease." Acta Neuropathol, vol.78, pp.337-347, 1989.
	L	SCHMIDT et al. "Chemical and Immunological Heterogeneity of Fibrillar Amyloid in Plaques of Alzheimer's Disease and Down's Syndrome Brains Revealed by Confocal Microscopy." American Journal of Pathology, Vol. 147, no.2, pp.503-515, August 1995.
	M	DICKSON. "The Pathogenesis of Senile Plaques." Journal of Neuropathology and Experimental Neurology, vol.56, no.4, pp.321-339, April, 1997.
86	N	SELKOE et al. "Isolation of Low-Molecular-Weight Proteins from Amyloid Plaque Fibers in Alzheimer's Disease." Journal of Neurochemistry, vol.46, no.6, pp.1820-1834, 1986.

80	O	SNOW et al. "The Presence of Heparin Sulfate Proteoglycans in the Neuritic Plaques and Congophilic Angiopathy in Alzheimer's Disease." American Journal of Pathology, Vol. 133, no.3, pp.456-463, December 1988.
	P	GLENNER et al. "Alzheimer's Disease: Initial Report of the Purification and Characterization of a Novel Cerebrovascular Amyloid Protein." Biochemical and Biophysical Research Communications, vol.120, No.3, pp.885-890, May 16, 1984.
	Q	MASTERS et al. "Amyloid Plaque Core Protein in Alzheimer Disease and Down Syndrome." Medical Sciences, vol.82, pp.4245-4249, June 1983.
	R	WHO-IUIS NOMENCLATURE SUB-COMMITTEE. "Nomenclature of Amyloid and Amyloidosis." Bulletin of the World Health Organization, vol.71, no.1, pp.105-108, 1993.
	S	TANZI et al. "Protease Inhibitor Domain Encoded by an Amyloid Protein Precursor Mrna Associated with Alzheimer's Disease." Nature, Vol.331, pp.528-532, February 1988.
	T	KITAGUCHI et al. "Novel Precursor of Alzheimer's Disease Amyloid Protein Shows Protease Inhibitory Activity." Nature, vol.331, pp.530-532, Feb.11, 1988.
	U	PONTE et al. "A New A4 Amyloid mRNA Contains a Domain Homologous to Sering Proteinase Inhibitors." Nature, Vol.311, pp.525-527, Feb.11, 1988.
	V	GRUNDKE-IQBAL et al. "Abnormal Phosphorylation of the Microtubule-Associated Protein τ (tau) in Alzheimer Cytoskeletal Pathology." Proc. Natl. Acad. Sci. USA, vol.83, pp.4913-4917, July 1986.
	W	KOSIK et al. "Microtubule-Associated Protein Tau τ is a Major Antigenic Component of Paired Helical Filaments in Alzheimer Disease." Proc. Natl. Acad. Sci. USA, Vol.83, pp.4044-4048, June 1986.
	X	LEE et al. "A68: A Major Subunit of Paired Helical Filaments and Derivatized Forms of Normal Tau." Science, Vol.25, pp.675-678, Feb., 1991.
80	Y	MANDYBUR. "Cerebral Amyloid Angiopathy: The Vascular Pathology and Complications." Jounal of Neuropathology and Experimental Neurology, Vol.45, No.1, pp. 79-90, January, 1986.

85	Z	PARDRIDGE et al. "Amyloid Angiopathy of Alzheimer's Disease: Amino Acid Composition and Partial Sequence of a 4,200-Dalton Peptide Isolated from Cortical Microvessels." Journal of Neurochemistry, vol.49, No.5, pp.1394-1401, 1987.
X	AA	CUTLER et al. "Tacrine in Alzheimer's Disease" The New England Journal of Medicine, vol 328, no.11, pp.808-810, March 18, [year of publication unknown]. <i>improper format no date</i>
85	BB	PIKE et al. "In Vitro Aging of β -Amyloid Protein Causes Peptide Aggregation and Neurotoxicity." Brain Research, Vol. 563, pp.311-314, 1991.
	CC	PIKE et al. "Structure-Activity Analyses of β -Amyloid Peptides: Contributions of the β 25-35 Region to Aggregation and Neurotoxicity." Journal of Neurochemistry, Vol.64, No.1, pp.253-265, 1995.
	DD	HARRIGAN et al. "Beta Amyloid is Neurotoxic in Hippocampal Slice Cultures." Neurobiology of Aging, Vol.16, No.5, pp.779-789, 1995.
	EE	GAMES et al. "Alzheimer-Type Neuropathology in Transgenic Mice Overexpressing V717F β -Amyloid Precursor Protein." Nature, Vol.373, pp.523-527, Feb.9, 1995.
	FF	HSIAO et al. "Age-Related CNS Disorder and Early Death in Transgenic FVB/N Mice Overexpressing Alzheimer Amyloid Precursor Proteins." Neuron, Vol.15, pp.1203-1218, Nov. 1995.
	GG	FLOOD et al. "Amnestic Effects in Mice of Four Synthetic Peptide Homologous to Amyloid β Protein from Patients with Alzheimer Disease." Proc. Natl. Acad. Sci. USA, Vol.88, pp.3363-3366, April 1991.
	HH	FLOOD et al. "An Amyloid β -Protein Fragment, A β [12-28], Equipotently Impairs Post-Training Memory Processing When Injected into Different Limbic System Structures." Brain Research, Vol.663, pp.271-276, 1994.
	II	VAN BROECKHOVEN et al. "Amyloid β Protein Precursor Gene and Hereditary Cerebral Hemorrhage with Amyloidosis (Dutch)." Science, Vol. 248, pp. 1120-1124, June 1990.
85	JJ	VAN BROECKHOVEN. "Molecular Genetics of Alzheimer Disease: Identification of Genes and Gene Mutations." Eur Neurol, Vol.35, pp.8-19, October 1991.

	KK	HAASS et al. "The Swedish Mutation Causes Early-Onset Alzheimer's Disease by β -Secretase Cleavage within the Secretory Pathway." <i>Nature Medicine</i> , Vol.1, No.12, pp.1291-1296, Dec. 1995.
	LL	MURRELL et al. "A Mutation in the Amyloid Precursor Protein Associated with Hereditary Alzheimer's Disease." <i>Science</i> , Vol.254, pp.97-99, Oct. 1991.
	MM	HARDY et al. "Framing β -Amyloid." <i>Nature Genetics</i> , Vol.1, pp.233-234, July 1992.
	NN	AMAGUCHI et al. "Variety of Cerebral Amyloid Deposits in the Brains of the Alzheimer-Type Dementia Demonstrated β Protein Immunostaining." <i>Neuropathol</i> , Vol.76, pp.541-549, 1988.
	OO	GIACCONE et al. "Down Patients: Extracellular Preamyloid Deposits Precede Neuritic Degeneration and Senile Plaques." <i>Neuroscience Letters</i> , Vol.97, pp.232-240, 1989.
	PP	ALLSOP et al. "Early Senile Plaques in Down's Syndrome Brains Show a Close Relationship with Cell Bodies of Neurons." <i>Neuropathology and Applied Neurobiology</i> , Vol.15, pp.531-542, 1989.
	QQ	IKEDA et al. "Brief Communication, Evidence of Amyloid β -Protein Immunoreactive Early Plaque Lesions in Down's Syndrome Brains." <i>Laboratory Investigation</i> , Vol.61, No.1, pp.133-137, 1989.
	RR	MANN et al. "An Analysis of the Morphology of Senile Plaques in Down's Syndrome Patients of Different Ages Using Immunocytochemical and Lectin Histochemical Techniques." <i>Neuropathology and Applied Neurobiology</i> , Vol.15, pp.317-329, 1989.
	SS	PAPPOLLA et al. "The Genesis of the Senile Plaque, Further Evidence in Support of its Neuronal Origin." <i>American Journal of Pathology</i> , Vol.141, No.5, pp.1151-1159, Nov. 1992.
	TT	LEMERE et al. "Sequence of Deposition of Heterogeneous Amyloid β -Peptides and APO E in Down Syndrome: Implications for Initial Events in Amyloid Plaque Formation." <i>Neurobiology of Disease</i> , Vol.3, pp.16-32, Article No.0003, 1996.
	UU	PAPPOLLA et al. "Image Analysis Microspectroscopy Shows that Neurons Participate in the Genesis of a Subset of Early Primitive (Diffuse) Senile Plaques." <i>American Journal of Pathology</i> , Vol.139, No.3, pp.599-607, Sept. 1991.
	VV	BOCKMAN et al. "Creutzfeldt-Jakob Disease Prion Proteins in Human Brains." <i>New England Journal of Medicine</i> , Vol.312, No.2, pp73-77, Jan. 10, 1985.

8	WW	KITAMOTO et al. "Amyloid Plaques in Creutzfeldt-Jakob Disease Stain with Prion Protein Antibodies." <i>Annals of Neurology</i> , Vol.20, No. 2, pp. 204-208, August 1986.
	XX	MANUELIDIS. "Creutzfeldt-Jakob Disease." <i>Journal of Neuropathology and Experimental Neurology</i> , Vol. 44, No. 1, pp. 1-17, Jan. 1985.
	YY	BROWN et al. "Creutzfeldt-Jakob Disease: Clinical Analysis of a Consecutive Series of 230 Neuropathologically Verified Cases." <i>Annals of Neurology</i> , Vol. 20, No. 5, pp. 597-602, Nov. 1986.
	ZZ	TATEISHI et al. "Gerstmann-Straussler-Scheinker Disease: Immunohistological and Experimental Studies." <i>Annals of Neurology</i> , Vol. 24, No. 1, pp. 35-40, July 1988.
	AAA	GAJDUSEK . "Unconventional Viruses and the Origin and Disappearance of Kuru." <i>Science</i> , Vol. 197, No.4307, Sept. 2 1977.
	BBB	HASHIMOTO et al. "Immunohistochemical Study of Kuru Plaques Using Antibodies Against Synthetic Prion Protein Peptides." <i>Acta Neuropathol</i> , Vol.83, pp.613-617, 1992.
	CCC	PEARLMAN et al. "Clinical Significance of Types of Cerebellar Amyloid Plaques in Human Spongiform Encephalopathies," <i>Neurology</i> , Vol. 38, pp. 1249-1254, Aug. 1988
	DDD	CORIA et al. "Isolation and Characterization of Amyloid P Component from Alzheimer's Disease and Other Types of Cerebral Amyloidosis," <i>Laboratory Investigation</i> , Vol. 58, No. 4. pp. 454-458. 1988
	EEE	ABRAHAM et al. "Immunochemical Identification of the Serine Protease Inhibitor α 1-Antichmotrypsin in the Brain Amyloid Deposits of Alzheimer's Disease," <i>Cell</i> , Vol. 52. pp.487-501. Feb. 1988
	FFF	NAMBA et al. "Apolipoprotein E Immunoreactivity in Cerebral Amyloid Deposits and Neurofibrillary tangles in Alzheimer's Disease and Kuru Plaque Amyloid in Cretzfeldt-Jacob Disease," <i>Brain Research</i> , Vol. 541 pp.163-166, 1991.
	GGG	STRITTMATTER et al. "Isoform-Specific Interactions of Apolipoprotein E with Microtubule-Associated Protein Tau:Implications for Alzheimer Disease," <i>Proc. National Academy of Science USA</i> , Vol. 91. pp.11183-11186, Nov. 1994.
56	HHH	STRITTMATTER et al. "Apolipoprotein E and Alzheimer Disease," <i>Proc. National Academy of Science USA</i> , Vol. 92, pp.4725-4727, May 1995.

III	EIKELENBOOM et al. "Complement Activation in amyloid Plaques in Alzheimer's Dementia," Virchows Archiv B Cell Pathol, Vol. 56, pp.259-262. 1989
JJJ	McGEER et al. "Immune System Response in Alzheimer's Disease," The Canadian Journal of Neurological Sciences, Vol. 16. pp.516-527. 1989.
KKK	ROGERS "Inflammation and Alzheimer's Disease," CNS Drugs 1, Vol. 4, pp.241-244. 1994.
LLL	SNOW et al. "Heparan Sulfate Proteoglycan in Diffuse Plaques of Hippocampus but Not of Cerebellum in Alzheimer's Disease Brain," American Journal of Pathology, Vol. 144, No. 2, pp.337-347. Feb. 1994.
MMM	MURTOMAKI et al. "Laminin and Its Neurite Outgrowth-Promoting Domain in the Brain in Alzheimer's Disease and Down's Syndrome Patients," Journal of Neuroscience Research, Vol. 32. pp.261-273. 1992.
NNN	PERLMUTTER et al. "Microangiopathy, the Vascular Basement Membrane and Alzheimer's Disease: A Review," Brain Research Bulletin, Vol. 24. pp.677-686. 1990.
OOO	PERLMUTTER et al. "Vascular Basement Membrane Components and the Lesions of Alzheimer's Disease: light and Electron Microscopic Analyses," Microscopy Research and Technique, Vol. 28. pp.204-215. 1994.
PPP	KAWAI et al. "The Relationship of Amyloid Plaques to Cerebral Capillaries in Alzheimer's Disease," American Journal of Pathology, Vol. 137. No.6. pp.1435-1446. Dec. 1990.
QQQ	LUTHERT et al. "A Quantitative Study of the coincidence of Blood Vessels and A4 Protein Deposits in Alzheimer's Disease," Neuroscience Letters, Vol. 126. pp.110-112. 1991.
RRR	KAWAI et al. "Serial Reconstruction of β -protein Amyloid Plaques: Relationship to Microvessels and Size Distribution," Brain Research, Vol. 592. pp.278-282. 1992.
SSS	BRANDAN et al. " Extracellular Matrix Components and Amyloid in Neuritic Plaques of Alzheimer's Disease," General Pharmaceutical, Vol. 24. No.5. pp.1063-1068. 1993.
TTT	HASSELL et al. " Isolation of a Heparan Sulfate-Containing Proteoglycan from Basement Membrane," Proc. National Academy of Science USA. Vol. 77. No. 8. pp.4494-4498. Aug. 1980.

8	UUU	NOONAN et al. "The Complete Sequence of Perlecan, A Basement Membrane Heparan Sulfate Proteoglycan, Reveals Extensive Similarity with Laminin A Chain, Low Density lipoprotein-Receptor, and the Neural Cell Adhesion Molecule," The Journal of Biological Chemistry. Vol. 266. No.34. pp.22939-22947. Dec. 1991.
	VVV	MURDOCH et al. "Primary Structure of the Human Heparan Sulfate Proteoglycan from Basement Membrane (HSPG2/Perlecan)," The Journal of Biological Chemistry. Vol. 267. No. 12. pp.8544-8557. Apr. 1992
	WWW	KALLUNKI et al. "Human Basement Membrane Heparan Sulfate Proteoglycan Core Protein: A 467-kD Protein Containing Multiple Domains Resembling Elements of the Low Density Lipoprotein Receptor, Laminin, Neural Cell Adhesion Molecules, and Epidermal Growth Factor," The Journal of Cell Biology. Vol.116. No.2 pp.559-571. Jan. 1992.
	XXX	IWATSUBO et al. "Visualization of A β 42(43) and A β 40 in Senile Plaques with End-Specific A β Monoclonals: Evidence That an Initially Deposited Species is A β 42(43)," Neuron. Vol. 13, pp.45-53, Jul. 1994.
	YYY	SUZUKI et al. "High Tissue Content of Soluble β 1-40 is linked to Cerebral Amyloid Angiopathy," American Journal of Pathology. Vol. 145 No.2, pp. 452-460, Aug. 1994.
	ZZZ	SNOW et al. "Peripheral Distribution of Dermatan Sulfate Proteoglycans (Decorin) in Amyloid-Containing Plaques and Their Presence in Neurofibrillary Tangles of Alzheimer's Disease," The Journal of Histochemistry and Cytochemistry. Vol. 40. No.2. pp.105-113. 1992.
	AAAA	SNOW et al. "Identification and Immunolocalization of a New Class of Proteoglycan (Keratan Sulfate) to the Neuritic Plaques of Alzheimer's Disease," Experimental Neurology. Vol. 138. pp.305-317. 1996.
	BBBB	DeWITT et al. "Chondroitin Sulfate Proteoglycans Are Associated with the Lesions of Alzheimer's Disease," Experimental Neurology. Vol. 121. pp.149-152. 1993.
	CCCC	KISILEVSKY et al. "Arresting Amyloidosis In Vivo Using Small-Molecule Anionic Sulphonates or Sulphates: Implications for Alzheimer's Disease," Nature Medicine, Vol. No.2. pp.143-148. Feb.1995.
9	DDDD	BJORNSSON et al. "Simultaneous Preparation and Quantitation of Proteoglycans by Precipitation with Alcian Blue," Analytical Biochemistry. Vol. 210. pp.282-291. 1993.

85	EEEE	DeWITT et al. "Astrocytes Regulate Microglial Phagocytosis of Senile Plaque Cores of Alzheimer's Disease," Experimental Neurology. Vol.149. pp.329-340. 1998.
	FFFF	PUCHTLER et al. "On the Binding of Congo Red by Amyloid," pp.355-364. Sept. 1961.
85	GGGG	REYNOLDS et al. "The Use of Lead Citrate at High pH As an Electron-Opaque Stain in Electron Microscopy," Brief Notes. pp.208-212. Nov. 1962.
X	HHHH	SNOW et al. "An Important Role of Heparan Sulfate Proteoglycan (Perlecan) in a Model System for the Deposition and Persistence of Fibrillar Aβ-Amyloid in Rat Brain," Neuron. (No volume no. available.) pp.219-234 <i>improper format no date</i>
85	IIII	TAM "Acid Deprotection Reactions in Peptide Synthesis," Macromolecular Sequencing and Synthesis, Vol.13.pp.153-184. 1998.
	JJJJ	HUNTER et al. "Preparation of Iodine-131 Labelled Human Growth Hormone of High Specific Activity," Nature, pp.495-496. May. 1962.
	KKKK	BOLTON et al. "The Labelling of Proteins to High Specific Radioactivities by Conjugation to a ¹²⁵ I-Containing Acylating Agent," Biochemistry Journal. Vol. 133, pp.529-539. Feb. 1973.
	LLLL	SNOW et al. "Heparin Modulates the Composition of the Extracellular Matrix Domain Surrounding Arterial Smooth Muscle Cells," American Journal of Pathology. Vol.137. No.2. pp.313-330. Aug. 1990.
	MMMM	ELGHETANY et al. "Methods for Staining Amyloid in Tissues: A Review," Stain Technology. Vol. 65. No.4. pp. 201-212. 1988
85	NNNN	KITAMOTO et al. "Formic Acid Pretreatment Enhances Immunostaining of Cerebral and Systemic Amyloids," Laboratory Investigation Vol. 57. No.2. pp.230-236. 1987.

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